

# GLOBAL RESEARCH ALLIANCE

## ON AGRICULTURAL GREENHOUSE GASES

**We bring countries together  
to find ways to grow more  
food without growing  
greenhouse gas emissions.**

Agriculture has a vital role to play in the coming decades with the world's population estimated to reach 9.6 billion by 2050. With more mouths to feed but limited natural resources to draw on, the sector must find ways to produce additional food and fibre sustainably, while also contributing to broader development goals.

The Global Research Alliance on Agricultural Greenhouse Gases (GRA) is increasing cooperation and investment in research activities to help reduce the emissions intensity of agricultural production systems and increase their potential for soil carbon sequestration. The goals are to improve their efficiency, productivity, resilience, and adaptive capacity. This contributes in a sustainable way to overall mitigation efforts but also helps meet food security objectives.

Improving the quantification of agricultural greenhouse gas emissions under different management scenarios is also key to understanding best practice. Many countries already have research underway to better understand, measure, and manage agricultural greenhouse gases emissions. By linking up these efforts through the GRA, we can achieve faster progress towards the solutions needed for improving agricultural productivity and reducing its greenhouse gas emissions.



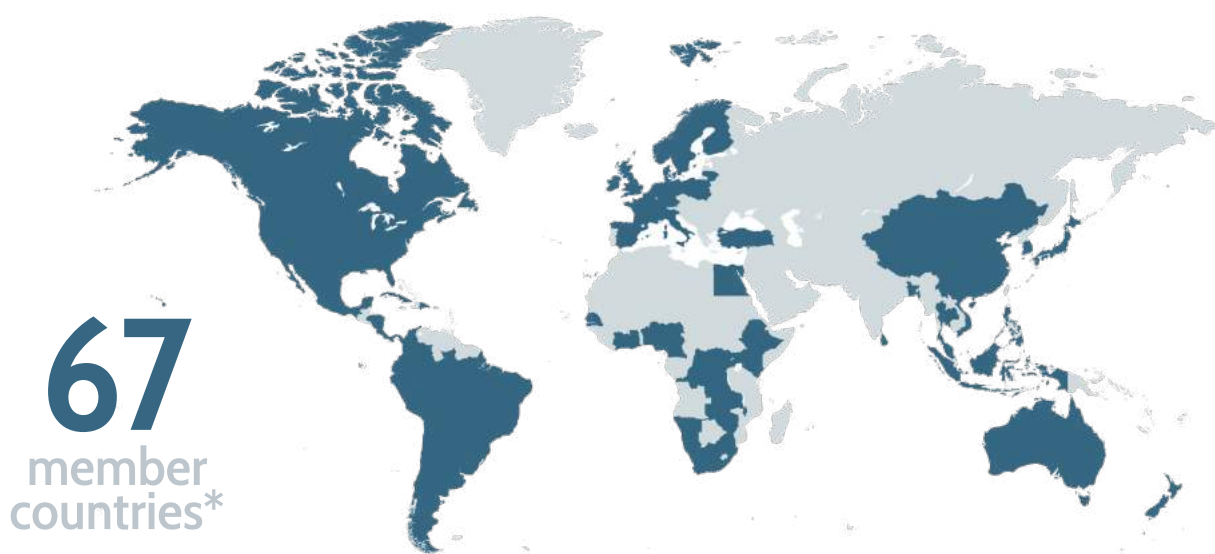


# GLOBAL RESEARCH ALLIANCE

on Agricultural Greenhouse Gases

The GRA is a tremendous opportunity to be part of an initiative that is bringing together the world's best in agricultural greenhouse gas emissions research and mitigation practices and technologies.

Climate change cannot be tackled by any country or research institution working alone.



**4** research  
groups



Paddy rice



Croplands



Livestock



Integrative

More than  
**3,000**



scientists  
involved in  
activities of  
the GRA

**80**



technical guidelines,  
resource materials and  
databases produced

**53**



technical training  
workshops held

**18**



science networks

\*See back page for a list of member countries

# 30 partner organisations



*The GRA is working together to provide knowledge and build capability for a better future.*

The GRA has gone from strength to strength since its launch at COP15 in Copenhagen in 2009. The initial alliance of 28 countries has become truly global, with countries from all regions of the world now coming together to address the question of how best to ensure future food security, whilst minimising agriculture's environmental footprint.

The Research Groups and Networks are led by representatives from a wide range of countries. Plus, the GRA Secretariat, supported by New Zealand, has grown to include staff based in Europe, Africa and Latin America.

As the GRA has grown, it has become increasingly recognised for its knowledge and expertise. Knowledge partnerships have been built with groups such as Pathways to Dairy Net Zero and the Agricultural Innovation Mission for Climate.

The GRA has also been involved in supporting LMIC countries to participate in international and regional research calls such as European Research Area Networks (ERA-NET), the European Joint Programme Cofund on Agricultural Soil Management (EJP SOIL) and the Regional Fund for Agriculture Technology in Latin America (FONTAGRO).

Growing more food without growing emissions has never been a more important goal. The GRA is working at all levels to build capacity and capability to drive towards this target.

# 152 collaborative projects supporting the GRA including six current Flagship Projects

# 278 fellowships awarded to recipients from 49 countries





## Collaborative research projects are at the heart of the GRA's work

They allow scientists to achieve results that would have been impossible working in isolation, for example by sharing data sets, harmonising measurements and methodologies, and pooling resources for analysing large numbers of samples or model inter-comparisons. Specific projects may be identified within Research Groups or Networks or at annual Council meetings, with participating countries then collaborating to source funding for the work. A significant number of projects have been completed to date, with more underway at present.

## GRA online resources facilitate new ways of working together

Much of the GRA's work relies on experts working together across boundaries to advance collective knowledge. A range of online resources have been created by researchers linking up to address critical knowledge gaps, analyse and improve data, standardise modelling assumptions, develop common protocols for measurement and find new ways of working together to advance shared priorities. Find examples here: [globalresearchalliance.org/research/livestock/collaborative-activities](https://globalresearchalliance.org/research/livestock/collaborative-activities)

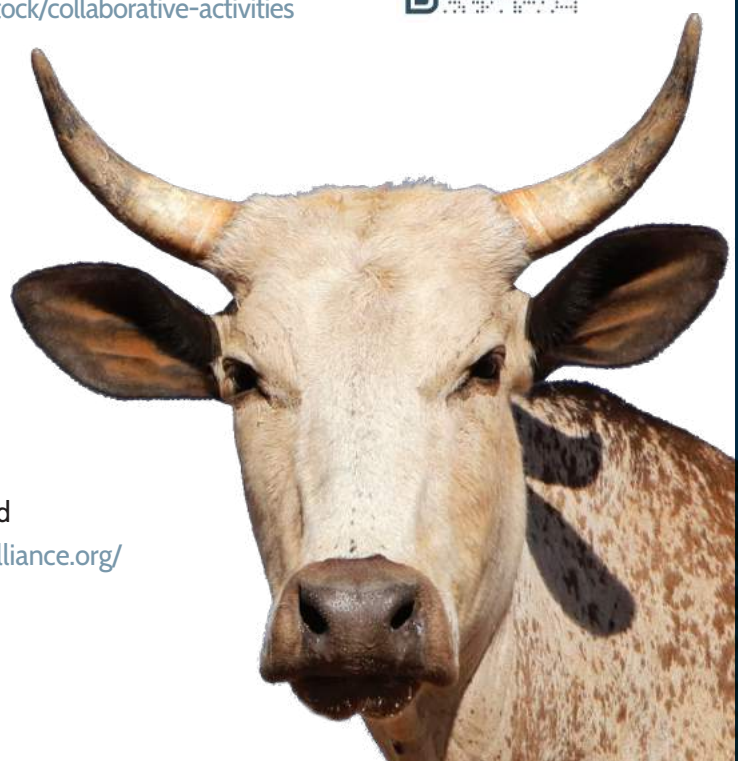


## High-profile publications and technical manuals help to share knowledge

Scientific knowledge needs to be shared widely to lead to policy change, impact and action. The work of the GRA has led to a number of high-profile journal articles, review



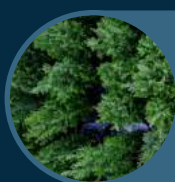
papers, good practice manuals and technical methodologies which are being recognised in the scientific community and beyond. Learn more here: [globalresearchalliance.org/publication-library](https://globalresearchalliance.org/publication-library)



# GRA Flagship Projects

GRA Flagship Projects are developing new knowledge to better understand agricultural greenhouse gases, have global relevance and applicability and will generate high scientific impact.

These key priority projects have been identified as uniquely suited to the research expertise and global membership of the GRA. Flagship Projects are specific, time-bound projects that have been approved by the GRA Council. They are led by a community of experts within the GRA membership and there are opportunities for others to get involved. Learn more here: [globalresearchalliance.org/flagship-projects](https://globalresearchalliance.org/flagship-projects)



## ***Agroecology & Agroforestry to mitigate climate change***

Goal: To develop a portfolio of agroforestry and agroecology best practices, and their respective value chains, which are clearly linked to their capacity to increase carbon sequestration and/or reduce greenhouse gas emissions.

Led by:  
Spain



## ***Economics of cattle GHG mitigation (EMiFa)***

Goal: To identify the most cost-effective options for farm level GHG mitigation strategies in different global production systems and provide evidence-based policy recommendations.

Led by:  
Germany



## ***Ensuring long-term mitigation and adaptation co-benefits***

Goal: To develop and apply new protocol-based methods for providing national decision-makers with evidence-based knowledge to ensure agricultural mitigation strategies have lasting impact.

Led by: USA



## ***Feed additives to reduce methane***

Goal: To accelerate the development and use of feed additives to reduce global enteric methane emissions from livestock.

Led by:  
Spain & the  
Netherlands



## ***Mining rumen data to reduce methane***

Goal: To generate new knowledge on the rumen microbiome which will enable novel interventions to reduce methane emissions from livestock.

Led by:  
United  
Kingdom



## ***Reducing N<sub>2</sub>O emissions and improving accounting***

Goal: To encourage global efforts to reduce GHG emissions from nitrogenous fertiliser by enabling its usage to be more accurately reflected in national level GHG accounting.

Led by: Chile



## ***Satellite monitoring to improve livestock management***

Goal: To develop globally applicable tools which improve management of grassland resources and support local initiatives to mitigate and adapt to climate change.

Led by:  
North  
America





## Sharing knowledge and building the capabilities of researchers and technicians to measure, predict and report on greenhouse gas emissions from agricultural systems is a critical area of work for the GRA.

This takes place in a variety of ways including leading technical training workshops, establishing capability building projects, profiling research via webinars and coordinating fellowship and award schemes.

Award schemes enable students, technicians and scientists to undertake 'on-the-job' training and help seed new collaborative ideas. Two programmes are highlighted below.

Learn more here: [globalresearchalliance.org/awards-and-fellowships](https://globalresearchalliance.org/awards-and-fellowships)

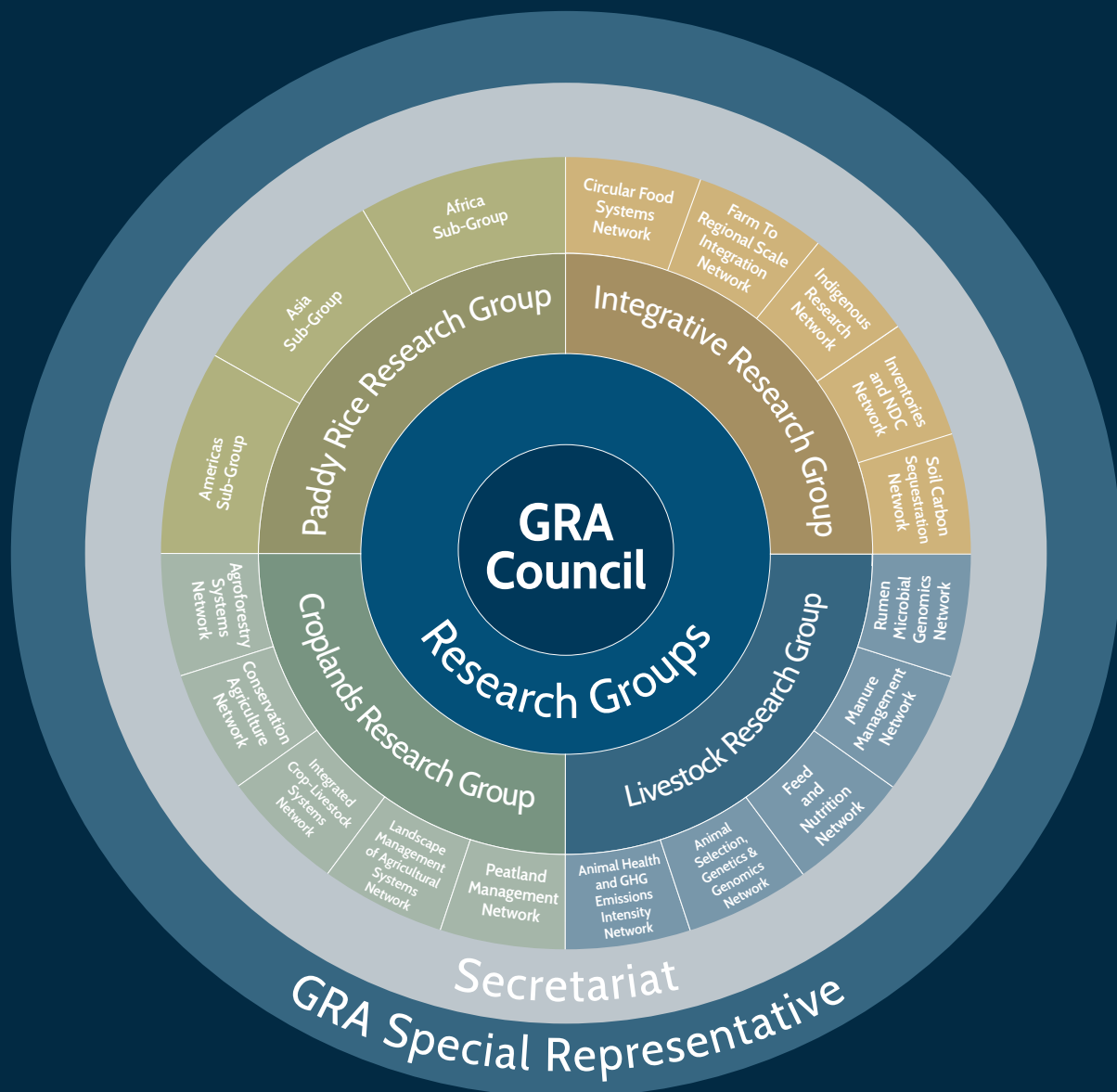


### **CLIFF-GRADS**

The Climate, Food and Farming, Global Research Alliance Development Scholarship (CLIFF-GRADS) is a joint initiative of the GRA and the CGIAR Mitigate+ programme. Since 2017, 176 PhD students, from 45 developing countries, have received awards to carry out research projects in different countries. 67 institutes from 35 countries have hosted CLIFF-GRADS to date.

### **GRA-RUFORUM**

The GRA has partnered with the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) in Africa to support Graduate Research Grants for Masters level projects for students studying agricultural GHGs. 8 awards, benefiting 22 students, were awarded in 2020.



## The GRA works across borders to drive towards its goals



The GRA Council is responsible for the governance of the organisation, with Research Groups driving the action. The four Research Groups carry out the work plan of the GRA by identifying opportunities, improving knowledge and sharing results. Much of the Research Groups' work relies on experts working across boundaries to advance collective knowledge. To support this goal, each Research Group supports Networks that focus on specific aspects of emissions research.

Additionally, in 2023, the GRA Council established the Mediterranean Agriculture Network, led by CIHEAM. This will provide an opportunity to promote a new mitigation paradigm among countries in the Mediterranean region and collaborate on joint projects and activities.

Learn more here: [globalresearchalliance.org/community](https://globalresearchalliance.org/community)



## Join the GRA!

Benefits of GRA membership include access to training and fellowships for early career scientists, awards and exchanges for senior scientists, research funds that encourage collaborative projects among member countries and partner organisations, participation in regional and topic specific science networks for researchers to share datasets and encouraging common measurement protocols.

Membership is open to any State represented by their competent authority (e.g. the nominated lead government department or agency). Participation in the GRA is on a voluntary basis, there is no cost to joining or annual membership fee. It is for each member to determine the nature and extent of its participation in any GRA activities.

### Contact us:

#### Website

[globalresearchalliance.org](http://globalresearchalliance.org)

#### Email

[secretariat@globalresearchalliance.org](mailto:secretariat@globalresearchalliance.org)



## GRA member countries

Argentina	Finland	Peru
Australia	France	Philippines
Bangladesh	Germany	Poland
Belgium	Ghana	Republic of Korea
Benin	Honduras	Samoa
Bolivia	Indonesia	Senegal
Brazil	Ireland	South Africa
Cameroon	Italy	Spain
Canada	Japan	Sri Lanka
Chile	Kenya	Swaziland
China	Lithuania	Sweden
Colombia	Malawi	Switzerland
Costa Rica	Malaysia	Thailand
Cote d'Ivoire	Mexico	Tunisia
Cuba	Mongolia	Turkey
DR Congo	Namibia	Uganda
Denmark	Netherlands	United Kingdom
Dominican Republic	New Zealand	United States
Ecudaor	Nicaragua	Uruguay
Egypt	Nigeria	Vietnam
Ethopia	Norway	Zambia
Fiji	Panama	Zimbabwe
	Paraguay	